

The *Journal of Statistical Physics* accepts original and review papers in the fields of statistical mechanics and thermodynamics of equilibrium and nonequilibrium processes. Papers on plasma physics, nonlinear dynamics, biology, stochastic processes, fluid dynamics, and chemical physics are also accepted provided they are of general interest in relating macroscopic behavior to microscopic interactions.

The general criteria for contributions are as follows. Papers should present important new results, and review papers should provide new insights. Clarity of presentation is important in all cases but, in many cases, particularly for review papers, it is the decisive criterion for publication. Each paper should be written in such a way that a clear understanding of the problem and of the results can be obtained from the abstract and introduction. Given that a paper meets these criteria, shorter papers are greatly preferred to longer ones. In summary, the journal publishes papers with important new results or insights written clearly and concisely.

The journal also accepts communications in the following departments: news of meetings, questions and answers, book reviews, and letters to the editor.

EDITOR-IN-CHIEF

Joel L. Lebowitz, Department of Mathematics, Rutgers University, New Brunswick, New Jersey

ASSISTANT TO THE EDITOR

Judy Williamson, Department of Mathematics, Rutgers University, New Brunswick, New Jersey

EDITORIAL BOARD

Douglas Abraham, Oxford University, Oxford, England
Michael Aizenman, New York University, New York, New York
David J. Bergman, Tel Aviv University, Tel Aviv, Israel
Kurt Binder, Universität Mainz, Mainz, West Germany
Carlo Cercignani, University of Milan, Milan, Italy
Pierre Collet, Centre de Physique Théorique, Palaiseau, France
Bernard Derrida, Commissariat à l'Energie Atomique, Gif-sur-Yvette, France
Roland Dobrushin, USSR Academy of Sciences, Moscow, USSR
Eytan Dornay, The Weizmann Institute of Science, Rehovot, Israel
Detlef Durr, Universität Bielefeld, Bielefeld, West Germany
B. Ubbö Felderhof, Institut für Theoretische Physik, Aachen, West Germany
Harry Kesten, Cornell University, Ithaca, New York
Roman Kotecky, Charles University, Praha, Czechoslovakia
A. Kupiainen, Helsinki University of Technology, Helsinki, Finland
Katja Lindenberg, University of California at San Diego, La Jolla, California
Grégoire Nicolis, Université Libre de Bruxelles, Bruxelles, Belgium
Enzo Olivieri, Università Dell'Aquila, L'Aquila, Italy
Yong Moon Park, Yonsei University, Seoul, South Korea
L. Pastur, USSR Academy of Sciences, Kharkov, USSR
Charles Edouard Pfister, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland
Howard Reiss, University of California at Los Angeles, Los Angeles, California
S. Shankar, Yale University, New Haven, Connecticut
Yasha G. Sinai, USSR Academy of Sciences, Moscow, USSR
E. R. Smith, La Trobe University, Bundoora, Australia
Alan D. Sokal, New York University, New York, New York
Bernard Souillard, Centre de Physique Théorique, Palaiseau, France
Dietrich Stauffer, Universität zu Köln, Köln, West Germany
Masuo Suzuki, University of Tokyo, Tokyo, Japan
Domokos Szasz, Hungarian Academy of Sciences, Budapest, Hungary
Constantino Tsallis, CBPF, Rio de Janeiro, Brazil
J. Leo van Hemmen, Universität Heidelberg, Heidelberg, West Germany
André Verbeure, Catholic University of Leuven, Leuven, Belgium
George H. Weiss, National Institutes of Health, Bethesda, Maryland
Michael S. Wertheim, Rutgers University, New Brunswick, New Jersey
Royce K. P. Zia, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

BOOK REVIEW EDITOR

George H. Weiss, National Institutes of Health, Bethesda, Maryland

Published monthly at Tempelhof 41, B-8000 Brugge, Belgium, by Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. In 1990, Volumes 58, 59, 60, and 61 (6 issues each) will be published. Subscription orders should be addressed to the publisher. Advertising inquiries should be addressed to the Advertising Sales Representative, Daniel S. Lipner, Weston Media Associates, P.O. Box 1110, Greens Farms, Connecticut 06436—telephone (203) 261-2500 and fax (203) 261-0101. *Journal of Statistical Physics* is abstracted or indexed in Applied Mechanics Reviews, Current Contents, Energy Research Abstracts, Engineering Index, INSPEC—Physics Abstracts, Mathematical Reviews, Referativnyi Zhurnal, and Science Citation Index. © 1990 Plenum Publishing Corporation. *Journal of Statistical Physics* participates in the Copyright Clearance Center (CCC) Transactional Reporting Service. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the flat fee of \$6.00 per copy per article (no additional per-page fees) directly to the Copyright Clearance Center, Inc., 27 Congress Street, Salem, Massachusetts 01970, for all copying not explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. The CCC is a nonprofit clearinghouse for the payment of photocopying fees by libraries and other users registered with the CCC. Therefore, this consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts. 0022-4715/90 \$6.00

Subscription rates:

Volumes 58, 59, 60, and 61, 1990 (6 issues each) \$290.00 per volume (outside the U.S., \$336.25 per volume).
 Volumes 62, 63, 64, and 65, 1991 (6 issues each) \$306.25 per volume (outside the U.S., \$358.75 per volume).

Second-class postage paid at Jamaica, N.Y. 11431. Postmaster: Send address changes to *Journal of Statistical Physics*, Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. Air freight and mailing in the USA by Publications Expediting, Inc., 200 Meacham Avenue, Elmont, N.Y. 11003.

Published monthly at Tempelhof 41, B-8000 Brugge, Belgium, by Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. In 1990, Volumes 58, 59, 60, and 61 (6 issues each) will be published. Subscription orders should be addressed to the publisher. Advertising inquiries should be addressed to the Advertising Sales Representative, Daniel S. Lipner, Weston Media Associates, P.O. Box 1110, Greens Farms, Connecticut 06436—telephone (203) 261-2500 and fax (203) 261-0101. *Journal of Statistical Physics* is abstracted or indexed in Applied Mechanics Reviews, Current Contents, Energy Research Abstracts, Engineering Index, INSPEC—Physics Abstracts, Mathematical Reviews, Referativnyi Zhurnal, and Science Citation Index. © 1990 Plenum Publishing Corporation. *Journal of Statistical Physics* participates in the Copyright Clearance Center (CCC) Transactional Reporting Service. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the flat fee of \$6.00 per copy per article (no additional per-page fees) directly to the Copyright Clearance Center, Inc., 27 Congress Street, Salem, Massachusetts 01970, for all copying not explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. The CCC is a nonprofit clearinghouse for the payment of photocopying fees by libraries and other users registered with the CCC. Therefore, this consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts. 0022-4715/90 \$6.00

CONTENTS

ARTICLES

Discrete Network Models for the Low-Field Hall Effect near a Percolation Threshold: Theory and Simulations <i>David J. Bergman, Edgardo Duering, and Michael Murat</i>	1
The Heisenberg XXZ Hamiltonian with Dzyaloshinsky-Moriya Interactions <i>F. C. Alcaraz and W. F. Wreszinski</i>	45
Hydrodynamics and Time Correlation Functions for Cellular Automata <i>M. H. Ernst and J. W. Dufty</i>	57
Spatial Fluctuations in Reaction-Diffusion Systems: A Model for Exponential Growth <i>P. G. J. van Dongen</i>	87
Anomalous Dynamics in the Ising Chain <i>J. M. Nunes da Silva and E. J. S. Lage</i>	115
Critical Acceleration of Lattice Gauge Simulations <i>R. Ben-Av, D. Kandel, E. Katznelson, P. G. Lauwers, and S. Solomon</i>	125
Gauge-Invariant Lattice Gas for the Microcanonical Ising Model <i>Richard C. Brower, K. J. M. Moriarty, Peter Orland, and Pablo Tamayo</i>	141
Monte Carlo Generation of Self-Avoiding Walks with Fixed Endpoints and Fixed Length <i>N. Madras, A. Orłitsky, and L. A. Shepp</i>	159
Surface Tension from Finite-Volume Vacuum Tunneling in the 3D Ising Model <i>Hildegard Meyer-Ortmanns and Thomas Trappenberg</i>	185
The q -State Potts Model in the Standard Pirogov-Sinai Theory: Surface Tensions and Wilson Loops <i>Roman Kotecký, Lahoussine Laanait, Alain Messenger, and Jean Ruiz</i>	199
The Shapes of Bowed Interfaces in the Two-Dimensional Ising Model <i>Lee-Fen Ko and Michael E. Fisher</i>	249
An Upper Bound on the Critical Temperature for a Continuous System with Short-Range Interaction <i>Joseph G. Conlon</i>	265
The Scale Equations in the Critical Dynamics of Fluctuating Systems <i>Yu. M. Ivanchenko, A. A. Lisyanskii, and A. E. Filippov</i>	295
Simulated Annealing and Quantum Detailed Balance <i>Alberto Frigerio</i>	325
Onsager's Reaction Field for the Potts Model from the Path Integral <i>A. L. Kholodenko</i>	355

SHORT COMMUNICATIONS

Response to "The Buttiker-Landauer Model Generalized" <i>M. Büttiker and R. Landauer</i>	371
Diffusion in Three-Dimensional Random Systems at Their Percolation Thresholds <i>H. Eduardo Roman</i>	375

Theta-Point Exponent for Polymer Chain in Random Media	383
<i>B. K. Chakrabarti and Somendra M. Bhattacharjee</i>	
A Method for Systematic Site-to-Bond Conversion of Directed Graphs	389
<i>J. A. M. S. Duarte</i>	

DEPARTMENTS

Erratum: Tests of Numerical Simulation Algorithms for the Kubo Oscillator	395
<i>Ronald F. Fox and Rajarshi Roy</i>	
Book Review: Proteins: A Theoretical Perspective of Dynamics, Structure, and Thermodynamics	397
<i>Noam Agmon</i>	
Book Review: Noise in Nonlinear Dynamical Systems	399
<i>George H. Weiss</i>	
Book Reviews: From Equilibrium to Chaos: Practical Bifurcation and Stability Analysis	
Non-Linear Oscillations	403
<i>Ralph Nossal</i>	
Future Contributions to <i>Journal of Statistical Physics</i>	405

CONTENTS

Special issue of invited papers dedicated to Cyril Domb, FRS, on the occasion of his retirement from Bar-Ilan University.

ARTICLES

Dedication	407
<i>George H. Weiss and Michael E. Fisher</i>	
Hamiltonian Limit of the 3D Zamolodchikov Model	411
<i>R. J. Baxter and G. R. W. Quispel</i>	
On the Corrections to Scaling in Three-Dimensional Ising Models	431
<i>Andrea J. Liu and Michael E. Fisher</i>	
Asymptotic Behavior of Mayer Cluster Sums for the One-Dimensional Ising Model	443
<i>G. S. Joyce</i>	
The Border Model in One Dimension	467
<i>George A. Baker, Jr. and J. D. Johnson</i>	
On the Area of Square Lattice Polygons	475
<i>I. G. Enting and A. J. Guttmann</i>	
The Transverse Correlation Length for Randomly Rough Surfaces	485
<i>A. A. Maradudin and T. Michel</i>	
Universal Incommensurate Structures	503
<i>A. E. Jacobs and David Mukamel</i>	
Low-Concentration Series in General Dimension	511
<i>Joan Adler, Yigal Meir, Amnon Aharony, A. B. Harris, and Lior Klein</i>	
Branched Polymers in a Wedge Geometry in Three Dimensions	539
<i>D. S. Gaunt and S. A. Colby</i>	
Möbius Function for the Set of Acyclic Directed Backbone Graphs	553
<i>D. K. Arrowsmith and J. W. Essam</i>	
The Statistics of Derangement—A Survey	575
<i>J. Gillis</i>	
High-Order Cycles in the Logistic Map or Centers of Cardioids in the Mandelbrot Set	579
<i>John Stephenson</i>	
On a Point of Order	599
<i>D. W. Wood and J. K. Ball</i>	
On the Domb–Joyce Model for Self-Avoiding Walks in the Continuum	617
<i>A. J. Barrett</i>	
Restricted Walks, Stability–Instability Transitions, and Dynamic Symmetries	627
<i>F. T. Hioe</i>	
On the Asymmetry of a Random Walk in the Presence of a Field	643
<i>George H. Weiss, Jaume Masoliver, and Kurt E. Shuler</i>	
Transport in Random Correlated Fields	653
<i>Shlomo Havlin</i>	

Discontinuous Behavior of Effective Transport Coefficients in Quasiperiodic Media <i>K. Golden, S. Goldstein, and J. L. Lebowitz</i>	669
Rigorous Derivation of Domain Growth Kinetics without Conservation Laws <i>Daniel Kandel and Eytan Domany</i>	685
Phase Equilibria and Critical Phenomena in Closed Reactive Systems <i>M. Gitterman</i>	707
The Impact of Large-Scale Computing on Lattice Statistics <i>J. L. Martin</i>	749
On Demonstrating Cooperative Phenomena <i>D. C. Rapaport</i>	775
 <i>DEPARTMENTS</i>	
Future Contributions to <i>Journal of Statistical Physics</i>	793

CONTENTS

ARTICLES

- Transmission Properties of Random Point Scatterers for Waves with Two-Band Dispersion Law 795
S. A. Gredeskul, L. A. Pastur, and P. Seba
- Are There More Than Five Linearly-Independent Collision Invariants for the Boltzmann Equation? 817
Carlo Cercignani
- A Study of Network Dynamics 825
Steve Renals and Richard Rohwer
- Diffusion Reproduction Processes 849
Yi-Cheng Zhang, Maurizio Serva, and Mikhail Polikarpov
- A Stochastic Return Map for Stochastic Differential Equations 863
Jeffrey B. Weiss and Edgar Knobloch
- Exact Solutions to the Time-Dependent Lorentz Gas Boltzmann Equation: The Approach to Hydrodynamics 885
John Palmeri
- The Dimension Spectrum of Axiom A Attractors 923
A. Porzio
- Ergodic Theorems for Reaction-Diffusion Processes 939
Mu-Fa Chen
- Convergence of Dynamical Zeta Functions 967
Erik Aurell
- On the Validity of Magnetohydrodynamics for Ionic Mixtures 997
A. J. Schoolderman and L. G. Suttorp
- The Effect of Three-Body Interactions on Thermal Desorption Spectra 1029
A. V. Myshlyavtsev, J. L. Sales, G. Zgrablich, and V. P. Zhdanov
- On Lushnikov's Model of Gelation 1041
E. Buffet and J. V. Pulé
- The n -Component Cubic Model and Flows: Subgraph Break-Collapse Method 1059
A. C. N. de Magalhães and J. W. Essam
- Single-Cluster Monte Carlo Dynamics for the Ising Model 1083
P. Tamayo, R. C. Brower, and W. Klein
- Lattice Animals: A Fast Enumeration Algorithm and New Perimeter Polynomials 1095
S. Mertens
- On the Structure of Mandelbrot's Percolation Process and Other Random Cantor Sets 1109
F. M. Dekking and R. W. J. Meester
- Susceptibility of the Kagomé Lattice Ising Model 1127
M. Debauche and H. Giacomini
- A Microscopic Model with Quasicrystalline Properties 1137
Jacek Miękisz

On the Bose Gas With Local Mean-Field Interaction <i>Manfred Schröder</i>	1151
Wigner Crystallization and Its Relation to the Poor Decay of Pair Correlations in One-Component Plasmas of Arbitrary Dimension <i>M. Requardt and H. J. Wagner</i>	1165
A Cluster Expansion for Stochastic Lattice Fields <i>J. Dimock</i>	1181
Model Apparatus for Quantum Measurements <i>Bernard Gaveau and L. S. Schulman</i>	1209
<i>SHORT COMMUNICATIONS</i>	
Phase Diagram of the One-State Potts Model on the Cayley Tree <i>F. S. de Aguiar, F. A. Bosco, A. S. Martinez, and S. Goulart Rosa, Jr.</i>	1231
Critical Points of Two-Dimensional Bootstrap Percolation-Like Cellular Automata <i>Roberto H. Schonmann</i>	1239
The Trajectory Scaling Function for Period Doubling Bifurcations in Flows <i>Maria C. de Sousa Vieira and Gemunu H. Gunaratne</i>	1245
Effect of Damage in Neural Networks <i>Eva Koscielny-Bunde</i>	1257
A New Class of Long-Tailed Pausing Time Densities for the CTRW <i>Shlomo Havlin and George H. Weiss</i>	1267
<i>DEPARTMENTS</i>	
Program of the 62nd Statistical Mechanics Meeting	1275
Future Contributions to <i>Journal of Statistical Physics</i>	1283

CONTENTS

ARTICLES

Critical Exponent for the Loop Erased Self-Avoiding Walk by Monte Carlo Methods <i>A. J. Guttmann and R. J. Bursill</i>	1
Dynamical Exponents for One-Dimensional Random-Random Directed Walks <i>Claude Aslangul, Marc Barthelemy, Noëlle Pottier, and Daniel Saint-James</i>	11
Diffusion in Lattices with Anisotropic Scatterers <i>J. B. T. M. Roerdink, K. E. Shuler, and G. F. Lawler</i>	23
Diffusion and Survival in a Medium with Imperfect Traps <i>Th. M. Nieuwenhuizen and H. Brand</i>	53
On the Stability of Crystal Growth <i>D. J. Gates and M. Wescott</i>	73
Coding and Computation with Neural Spike Trains <i>William Bialek and A. Zee</i>	103
Statistical Mechanics of Probabilistic Cellular Automata <i>Joel L. Lebowitz, Christian Maes, and Eugene R. Speer</i>	117
A Toom Rule That Increases the Thickness of Sets <i>Peter Gács</i>	171
A Fixed Point Equation for the High-Temperature Phase of Discrete Lattice Spin Systems <i>Tom Kennedy</i>	195
Cluster Expansion for d -Dimensional Lattice Systems and Finite-Volume Factorization Properties <i>Enzo Olivieri and Pierre Picco</i>	221
Statistical-Thermodynamic Approach to a Chaotic Dynamical System: Exactly Solvable Examples <i>H. Shigematsu</i>	257
Asymptotic Geometry of Hyperbolic Well-Ordered Cantor Sets <i>F. M. Tangerman and J. J. P. Veerman</i>	299
Finite-Temperature Density Functional Theory of Atoms in Strong Magnetic Fields <i>Shiwei Li and J. K. Percus</i>	323
The Nearest-Neighbor Resonating-Valence Bond State in a Grassmannian Form <i>Thomas Blum and Yonathan Shapir</i>	333
Inertial Effects on the Escape Rate of a Particle Driven by Colored Noise: An Instanton Approach <i>T. J. Newman, A. J. Bray, and A. J. McKane</i>	357
Brownian Motion in a Rotating Flow <i>Toshiyuki Gotoh</i>	371
On Solutions to the Linear Boltzmann Equation with General Boundary Conditions and Infinite-Range Forces <i>Rolf Petterson</i>	403

The Kinetic Boundary Layer for the Linearized Boltzmann Equation around an Absorbing Sphere <i>G. F. Hubmer and U. M. Titulaer</i>	441
Global Existence in L^1 for the Generalized Enskog Equation <i>Jacek Polewczak</i>	461

SHORT COMMUNICATIONS

Viscous Drag by Cellular Automata <i>J. A. M. S. Duarte and U. Brosa</i>	501
Large-Scale Simulation of Avalanche Cluster Distribution in Sand Pile Model <i>S. S. Manna</i>	509
Euler Characteristic in Percolation Theory <i>B. L. Okun</i>	523

DEPARTMENTS

Program: Statistical Physics at the 45th Parallel: 3rd Annual Meeting, Clarkson University	529
Book Review: Principles of Statistical Radiophysics, 3, Elements of Random Fields <i>Mark J. Beran</i>	533
Addendum: A Stochastic Particle System Modeling the Carleman Equation <i>S. Caprino, A. DeMasi, E. Presutti, and M. Pulvirenti</i>	535
Future Contributions to <i>Journal of Statistical Physics</i>	539

CONTENTS

ARTICLES

Perturbation Theory of the Fermi Surface in a Quantum Liquid. A General Quasi-particle Formalism and One-Dimensional Systems <i>G. Benfatto and G. Gallavotti</i>	541
Asymptotic Behavior of Energy Band Associated with a Negative Energy Level <i>V. L. Oleinik</i>	665
Spectral Properties of a Periodically Kicked Quantum Hamiltonian <i>M. Combescure</i>	679
Linear Quantum Enskog Equation. I. Homogeneous Quantum Fluids <i>D. Loss</i>	691
On the Snider Equation <i>F. Laloë and W. J. Mullin</i>	725
The Density of States in the Anderson Model at Weak Disorder: A Renormalization Group Analysis of the Hierarchical Model <i>Anton Bovier</i>	745
A Link Between Quantum and Classical Potts Models <i>Taku Matsui</i>	781
Chiral Potts Model as a Descendent of the Six-Vortex Model <i>V. V. Bazhanov and Yu. G. Stroganov</i>	799
Cluster Variation Method and Möbius Inversion Formula <i>T. Morita</i>	819
The Nearest Neighbor Gradient System. A Rigorous Model for a Version of the Minimal Entropy Production Principle <i>Michael G. Mürmann</i>	827
Global Existence in L^1 for the Enskog Equation and Convergence of the Solutions to Solutions of the Boltzmann Equation <i>Leif Arkeryd and Carlo Cercignani</i>	845
A Microscopic Derivation of Macroscopic Sharp Interface Problems Involving Phase Transitions <i>G. Caginalp</i>	869
The Quasiclassical Langevin Equation and Its Application to the Decay of a Metastable State and to Quantum Fluctuations <i>U. Eckern, W. Lehr, A. Menzel-Dorwarth, F. Pelzer, and A. Schmid</i>	885
The One-Dimensional Kinetic Ising Model: A Series Expansion Study <i>Douglas Poland</i>	935
Monotonicity of the Number of Self-Avoiding Walks <i>George L. O'Brien</i>	969
The Kirkwood-Salsburg Equations for Random Continuum Percolation <i>James A. Given and George Stell</i>	981
Systematics of the Models of Immune Response and Autoimmune Disease <i>Debashish Chowdhury and Dietrich Stauffer</i>	1019

Comparative Study of Damage Spreading in the Ising Model Using Heat-Bath, Glauber, and Metropolis Dynamics <i>A. M. Mariz, H. J. Herrmann, and L. de Arcangelis</i>	1043
Stochastic Analyses of the Dynamics of Generalized Little-Hopfield-Hemmen Type Neural Networks <i>Masatoshi Shiino</i>	1051

SHORT COMMUNICATION

A High-Precision Study of the Hopfield Model in the Phase of Broken Replica Symmetry <i>G. A. Kohring</i>	1077
---	------

DEPARTMENTS

Erratum: Two-Dimensional Monomer-Dimer Systems are Computationally Intractable <i>Mark Jerrum</i>	1087
Book Review: Dynamical Processes in Condensed Molecular Systems <i>Michael F. Shlesinger</i>	1089
Future Contributions to <i>Journal of Statistical Physics</i>	1091

CONTENTS

ARTICLES

<p>Perturbation Expansions for Quantum Many-Body Systems <i>Martin P. Gelfand, Rajiv R. P. Singh, and David A. Huse</i></p> <p>On the Connection Between the One-Dimensional $S = 1/2$ Heisenberg Chain and Haldane-Shastry Model <i>V. I. Inozemtsev</i></p> <p>A Complementary Thermodynamic Limit for Classical Coulomb Matter <i>Michael K.-H. Kiessling</i></p> <p>Low-Viscosity Lattice Gases <i>B. Dubrulle, U. Frisch, M. Hénon, and J.-P. Rivet</i></p> <p>Tracer Diffusion in Lattice Gases <i>Herbert Spohn</i></p> <p>Diffusion and Einstein Relation for a Massive Particle in a One-Dimensional Free Gas: Numerical Evidence <i>C. Boldrighini, G. C. Cosimi, and S. Frigio</i></p> <p>On a One-Dimensional Model for the Three-Dimensional Vorticity Equation <i>Salvatore De Gregorio</i></p> <p>Renormalization of Binary Trees Derived from One-Dimensional Unimodal Maps <i>Yuzhen Ge, Edmond Rusjan, and Paul Zweifel</i></p> <p>A Theorem on the First Heteroclinic Tangency in Two-Dimensional Maps. Orientation-Preserving Cases <i>Yoshihiro Yamaguchi and Kiyotaka Tanikawa</i></p> <p>The Mechanism of the Increase of the Generalized Dimension of a Filtered Chaotic Time Series <i>A. Chennaoui, J. Liebler, and H. G. Schuster</i></p> <p>A Stochastic Approach to Hopping Transport in Semiconductors <i>Eckhard Platen</i></p> <p>Hard-Hexagon Model: Anisotropy of Correlation Length and Interfacial Tension <i>Masafumi Fujimoto</i></p> <p>Multilayer Wetting in Partially Symmetric q-State Models <i>François Dunlop, Lahoussine Laanait, Alain Messenger, Salvador Miracle-Sole, and Jean Ruiz</i></p> <p>Finite-Size Scaling of the Three-State Potts Model on a Simple Cubic Lattice <i>M. Fukugita, H. Mino, M. Okawa, and A. Ukawa</i></p> <p>An Investigation of Finite-Size Scaling for Systems with Long-Range Interaction: The Spherical Model <i>Jordan G. Brankov and Nikolai S. Tonchev</i></p> <p>The Magnetization-Energy Scaling Limit in High Dimension <i>Joël De Coninck and Charles M. Newman</i></p> <p>On the Upper Critical Dimension of Lattice Trees and Lattice Animals <i>Takashi Hara and Gordon Slade</i></p>	<p>1093</p> <p>1143</p> <p>1157</p> <p>1187</p> <p>1227</p> <p>1241</p> <p>1251</p> <p>1265</p> <p>1297</p> <p>1311</p> <p>1329</p> <p>1355</p> <p>1383</p> <p>1397</p> <p>1431</p> <p>1451</p> <p>1469</p>
--	---

On Equivalence of Spin and Field Pictures of Lattice Systems <i>Boguslav Zegarlinski</i>	1511
Infinite-Order Phase Transition in a Classical Spin System <i>O. Costin, R. D. Costin, and C. P. Grünfeld</i>	1531
Bringing Statistical Mechanics into Chemistry: The Early Scientific Work of Karl F. Herzfeld <i>Karen E. Johnson</i>	1547

SHORT COMMUNICATIONS

Longest Path in Percolating Hierarchical Lattice <i>P. Sen and P. Ray</i>	1573
Theory of Self-Avoiding Walks on Percolation Fractals <i>A. K. Roy and A. Blumen</i>	1581
Ergodic Properties of the Multidimensional Rayleigh Gas with a Semipermeable Barrier <i>L. Erdős and D. Q. Tuyen</i>	1589
Announcement	1603
Future Contributions to <i>Journal of Statistical Physics</i>	1605

CONTENTS

ARTICLES

Nonlocal Monte Carlo Algorithm for Self-Avoiding Walks with Fixed Endpoints <i>Sergio Caracciolo, Andrea Pelissetto, and Alan D. Sokal</i>	1
A Numerical Method to Compute Exactly the Partition Function with Application to $Z(n)$ Theories in Two Dimensions <i>Gyan Bhanot</i>	55
Row Transfer Matrix Spectra of Cyclic Solid-on-Solid Lattice Models <i>Paul A. Pearce and Murray T. Batchelor</i>	77
Power-Law Falloff in the Kosterlitz-Thouless Phase of a Two-Dimensional Lattice Coulomb Gas <i>Domingos H. U. Marchetti, Abel Klein, and J. Fernando Perez</i>	137
Conformal Invariance and Surface Defects in the Two-Dimensional Ising Model. Exact Results <i>Bertrand Berche and Loïc Turban</i>	167
Hypercube Stacking: A Potts-Spin Model for Surface Growth <i>Bruce M. Forrest and Lei-Han Tang</i>	181
Yang-Lee Theory and the Conductor-Insulator Transition in Asymmetric Log-Potential Lattice Gases <i>P. J. Forrester</i>	203
Entropy of a One-Dimensional Mixed Lattice Gas <i>J. K. Percus</i>	221
Amplitude Death in an Array of Limit-Cycle Oscillators <i>Renato E. Mirollo and Steven H. Strogatz</i>	245

SHORT COMMUNICATIONS

Simulating the Immune Response to the HIV-1 Virus with Cellular Automata <i>Ch. F. Kougias and J. Schulte</i>	263
Stiffness Exponent, Number of Pure States, and Almeida-Thouless Line in Spin-Glasses <i>A. C. D. van Enter</i>	275
An Inequality for Partition Functions with Disturbed Hamiltonians <i>Ch. Zylka</i>	281

DEPARTMENTS

Future Contributions to <i>Journal of Statistical Physics</i>	285
---	-----

CONTENTS

ARTICLES

- Fluctuations of Extensive Functions of Quenched Random Couplings 287
Jan Wehr and Michael Aizenman
- The Bethe Ansatz for the Six-Vertex Model with Rotated Boundary Conditions 307
A. A. Litvin and V. B. Priezzhev
- Finite-Size Effects for Some Bootstrap Percolation Models 323
A. C. D. van Enter, Joan Adler, and J. A. M. S. Duarte
- Solving the Ising Model Exactly on a $5 \times 5 \times 4$ Lattice Using the Connection Machine 333
Gyan Bhanot and Srikanth Sastry
- Exact Coexistence Surfaces Containing Double Critical Points for a Three-Component Solution on the Bethe, Honeycomb, and Square Lattices 347
Dale A. Huckaby and Masato Shinmi
- Current Distribution on a Three-Dimensional, Bond-Diluted, Random-Resistor Network at the Percolation Threshold 363
Edgardo Duering and David J. Bergman
- Structure Factor of Substitutional Sequences 383
Zheming Cheng and Robert Savit
- A First-Order Level-2 Phase Transition in Thermodynamic Formalism 395
A. O. Lopes
- Master Equations for Subordinated Processes 413
F. Monti and H. R. Jauslin
- Solution Methods for Discrete-State Markovian Initial Value Problems 445
V. C. Boffi, F. Malvagi, and G. C. Pomraning
- First-Passage-Time Approach to Overbarrier Relaxation of Magnetization 473
Ivo Klik and Leon Gunther
- The Role of Weak Resonances in AC-Driven Brownian Motion and Rate Processes 485
A. L. Gerasimov
- On the Description of Atomic Motions in Dense Fluids by the Generalized Langevin Equation: Statistical Properties of Random Forces 501
G. Sesé, E. Guàrdia, and J. A. Padró

SHORT COMMUNICATION

- On Finite-Size Scaling in the Presence of Dangerous Irrelevant Variables 519
Jordan G. Brankov and Nikolai S. Tonchev
- Future Contributions to *Journal of Statistical Physics* 527

CONTENTS

ARTICLES

- Zeros of the Finite-Size Scaling Region Partition Function for a Model with a Wetting Transition 529
E. R. Smith
- Nonsymmetric First-Order Transitions: Finite-Size Scaling and Tests for Infinite-Range Models 551
V. Privman and J. Rudnick
- Geometric Properties of Random Disk Packings 561
Boris D. Lubachevsky and Frank H. Stillinger
- Monte Carlo Study of the Ising Model Phase Transition in Terms of the Percolation Transition of "Physical Clusters" 585
Marco D'Onorio De Meo, Dieter W. Heermann, and Kurt Binder
- Ionization Equilibrium in the Electron-Proton Gas 619
N. Macris and Ph. A. Martin
- Conformal Invariance and the Critical Behavior of the Triplet XY Quantum Chain 639
Francisco C. Alcaraz and Clisthenis P. Constantinidis
- Collective Modes in a One-Dimensional Nonuniform Fluid Model 659
S. Fesjian and J. K. Percus
- A Random Covering Interpretation for the Phase Transition of the Random Energy Model 669
F. Koukiou
- Macroscopic Theory of Activated Decay of Metastable States 675
Robert Graham
- Statics and Dynamics of a Diffusion-Limited Reaction: Anomalous Kinetics, Nonequilibrium Self-Ordering, and a Dynamic Transition 695
Daniel ben-Avraham, Martin A. Burschka, and Charles R. Doering
- Critical Exponents for Two-Dimensional Tracer Diffusion through a Changing Background at Concentration $c = c_p$ 729
Jamie R. Powell, David A. Pink, and Bonnie Quinn
- Noise-Induced Global Asymptotic Stability 735
Michael C. Mackey, André Longtin, and Andrzej Lasota
- Intrinsic Fluctuations and a Phase Transition in a Class of Large Populations of Interacting Oscillators 753
Hiroaki Daido
- A Note on Recurrent Random Walks on Graphs 801
András Telcs
- Growth in a Restricted Solid on Solid Model with Correlated Noise 809
A. Margolina and H. E. Warriner
- Mutual Information Functions versus Correlation Functions 823
Wentian Li
- Explicit Runge-Kutta-like Schemes to Solve Certain Quantum Operator Equations of Motion 839
Qin Meng-Zhao and Zhang Mei-Qing

SHORT COMMUNICATIONS

Long-Range Spatial Correlations in a Simple Diffusion Model <i>H. van Beijeren</i>	845
Properties of Metastable Ising Models Evolving under the Swendsen-Wang Dynamics <i>T. S. Ray and P. Tamayo</i>	851
The Limit-Periodic Finite-Difference Operator on $l^2(\mathbb{Z})$ Associated with Iterations of Quadratic Polynomials <i>M. Sodin and P. Yuditski</i>	863
Flow through a Porous Membrane Simulated by Cellular Automata and by Finite Elements <i>U. Brosa, C. Küttner, and U. Werner</i>	875

DEPARTMENTS

Addendum: Single Cluster Monte Carlo Dynamics for the Ising Model <i>P. Tamayo, R. C. Brower, and W. Klein</i>	889
Program of the Workshop on Large-Scale Computations in Statistical Physics	891
Program of the 63rd Statistical Mechanics Meeting	895
Future Contributions to <i>Journal of Statistical Physics</i>	903

CONTENTS

ARTICLES

High-Temperature Series for Scalar-Field Lattice Models: Generation and Analysis <i>Bernie G. Nickel and J. J. Rehr</i>	1
Conformal Invariance in Incommensurate Phases <i>Hyunggyu Park and Mike Widom</i>	51
A Rigorous Theory of Finite-Size Scaling at First-Order Phase Transitions <i>Christian Borgs and Roman Kotecký</i>	79
Superdegenerate Point in FCC Phase Diagram: CVM and Monte Carlo Investigations <i>R. Tétot, A. Finel, and F. Ducastelle</i>	121
A Variational Approach to Distribution Function Theory <i>Antoine G. Schlijper and Ryoichi Kikuchi</i>	143
Critical Wetting in the Square Ising Model with a Boundary Field <i>E. V. Albano, K. Binder, D. W. Heermann, and W. Paul</i>	161
Multilayer Wetting in Clock Models <i>Karl Berlier, Joël De Coninck, François Dunlop, and Frédéric Menu</i>	179
Simulation Calculation of Dielectric Constants: Comparison of Methods on an Exactly Solvable Model <i>T. J. Morrow and E. R. Smith</i>	187
The Discrete Coagulation-Fragmentation Equations: Existence, Uniqueness, and Density Conservation <i>J. M. Ball and J. Carr</i>	203
Metastability with Probabilistic Cellular Automata in an HIV Infection <i>R. B. Pandey and D. Stauffer</i>	235
One-Dimensional Caricature of Phase Transition <i>Roberto H. Schonmann and Nelson I. Tanaka</i>	241
The Emergence of Coherent Structures in Coupled Map Lattices <i>L. A. Bunimovich, A. Lambert, and R. Lima</i>	253
Universal Encoding for Unimodal Maps <i>S. Isola and A. Politi</i>	263
Duality in Parameter Space and Approximation of Measures for Mixing Repellers <i>S. Abenda and G. Turchetti</i>	293
On Ruch's Principle of Decreasing Mixing Distance in Classical Statistical Physics <i>Paul Busch and Ralf Quadt</i>	311
Transient Dynamical Behavior and Phase Transitions in Magnetic Systems <i>D. Hansel, C. Meunier, and A. Verga</i>	329
Theory on Morphological Instability in Driven Systems <i>Kwan-tai Leung</i>	345
Interchangeability and Bounds on the Effective Conductivity of the Square Lattice <i>O. Bruno and K. Golden</i>	365

One-Dimensional Harmonic Lattice Caricature of Hydrodynamics: A Higher Correction <i>R. L. Dobrushin, A. Pellegrinotti, and Yu. M. Suhov</i>	387
Microscopic Dynamical Exponents for Random-Random Directed Walk on a One-Dimensional Lattice with Quenched Disorder <i>Claude Aslangul, Marc Barthelemy, Noëlle Pottier, and Daniel Saint-James</i>	403
Off-Diagonal Long-Range Order and the Meissner Effect <i>Geoffrey L. Sewell</i>	415
On the Thermodynamic V -Representability of One-Particle Density Matrices <i>Albrecht Huber and Hans-Ulrich Jüttner</i>	423
A Density-Corrected Quantum Boltzmann Equation <i>R. F. Snider</i>	443
Linear Quantum Enskog Equation. II. Inhomogeneous Quantum Fluids <i>D. Loss</i>	467
 <i>SHORT COMMUNICATIONS</i>	
Diffusion of Lattice Gases without Double Occupancy on Three-Dimensional Percolation Lattices <i>O. Paetzold</i>	495
Slowing Down of Retrieval in the Hopfield Model <i>M. Ghosh, A. K. Sen, B. K. Chakrabarti, and G. A. Kohring</i>	501
 <i>DEPARTMENTS</i>	
Erratum <i>M. H. Ernst and J. W. Dufty</i>	505
Future Contributions to <i>Journal of Statistical Physics</i>	507

CONTENTS

ARTICLES

Langevin Dynamics of an Interface near a Wall <i>Douglas Abraham, Pierre Collet, Joël De Coninck, and François Dunlop</i>	509
Dissipation and Large Thermodynamic Fluctuations <i>Gregory L. Eyink</i>	533
Multifractal Structure of Fully Developed Hydrodynamic Turbulence. I. Kolmogorov's Third Hypothesis Revisited <i>V. R. Chechetkin, V. S. Lutovinov, and A. Yu. Turygin</i>	573
Multifractal Structure of Fully Developed Hydrodynamic Turbulence. II. Intermittency Effects in the Distribution of Passive Scalar Impurities <i>V. R. Chechetkin, V. S. Lutovinov, and A. Yu. Turygin</i>	589
Universal Multifractal Properties of Circle Maps from the Point of View of Critical Phenomena. I. Phenomenology <i>B. Fourcade and A.-M. S. Tremblay</i>	607
Universal Multifractal Properties of Circle Maps from the Point of View of Critical Phenomena. II. Analytical Results <i>B. Fourcade and A.-M. S. Tremblay</i>	639
Kinetic Limit of a Conservative Lattice Gas Dynamics Showing Long-Range Correlations <i>Christian Maes</i>	667
Temperature Overshoots for a 4-Velocity Unidimensional Discrete Boltzmann Model <i>Henri Cornille and Yue-Hong Qian</i>	683
Generalized Langevin Equations with Time-Dependent Temperature <i>J. J. Brey and J. Casado</i>	713
High-Precision Monte Carlo Test of the Conformal-Invariance Predictions for Two- Dimensional Mutually Avoiding Walks <i>Bin Li and Alan D. Sokal</i>	723
Phase Transition in an Interacting Bose System. An Application of the Theory of Ventsel' and Freidlin <i>Bálint Tóth</i>	749
Relaxation in Cooperative Systems: Use of Mixture Virial Coefficients <i>Douglas Poland</i>	765
Exact Equations of State for One-Dimensional Chain Fluids <i>Kevin G. Honnell and Carol K. Hall</i>	803
Inverse Problems of Aggregation Processes <i>H. Wright, R. Muralidhar, T. Tobin, and D. Ramkrishna</i>	843

SHORT COMMUNICATIONS

Is There Screening in Turbulence? <i>David Ruelle</i>	865
--	-----

The Energy Level Spacing for Two Harmonic Oscillators with Golden Mean Ratio of Frequencies	869
<i>P. M. Bleher</i>	
On the Bethe Ansatz for Random Directed Polymers	877
<i>J. P. Bouchaud and H. Orland</i>	
Novel Scaling Behavior of Directed Polymers: Disorder Distribution with Long Tails	885
<i>Umberto Marini Bettolo Marconi and Yi-Cheng Zhang</i>	
Nucleation near the Spinodal in Long-Range Ising Models	891
<i>T. S. Ray and W. Klein</i>	
Theta-Point Exponent for Polymer Chains on Percolation Fractals	903
<i>A. K. Roy, B. K. Chakrabarti, and A. Blumen</i>	
Comments on "Power Law Fall Off in the Kosterlitz-Thouless Phase of a Two-Dimensional Lattice Coulomb Gas"	909
<i>Domingos H. U. Marchetti</i>	
Multifractal Magnetization on Hierarchical Lattices	913
<i>W. A. M. Morgado, S. Coutinho, and E. M. F. Curado</i>	
Cascades and Self-Organized Criticality	923
<i>S. S. Manna, László B. Kiss, and János Kertész</i>	
Fully Parallel Code for Monte Carlo Simulation	933
<i>T. J. P. Penna and P. M. C de Oliveira</i>	
Social Paradoxes of Majority Rule Voting and Renormalization Group	943
<i>Serge Galam</i>	
 <i>DEPARTMENTS</i>	
Book Review: Chaotic Dynamics of Nonlinear Systems	953
<i>Moshe Gitterman</i>	
Book Review: Principles of Statistical Radiophysics, 4, Elements of Random Fields	957
<i>Mark J. Beran</i>	
Future Contributions to <i>Journal of Statistical Physics</i>	959

CONTENTS

ARTICLES

- Lyapunov Exponents of Large, Sparse Random Matrices and the Problem of Directed Polymers with Complex Random Weights 961
J. Cook and B. Derrida
- Bethe Lattice Spin Glass: The Effects of a Ferromagnetic Bias and External Fields. I. Bifurcation Analysis 987
J. M. Carlson, J. T. Chayes, L. Chayes, J. P. Sethna, and D. J. Thouless
- Bethe Lattice Spin Glass: The Effects of a Ferromagnetic Bias and External Fields. II. Magnetized Spin-Glass Phase and de Almeida-Thouless Line 1069
J. M. Carlson, J. T. Chayes, J. P. Sethna, and D. J. Thouless
- Rigorous Results on Mathematical Models of Catalytic Surfaces 1085
E. R. Grannan and G. Swindle
- Metastability and Exponential Approach to Equilibrium for Low-Temperature Stochastic Ising Models 1105
Fabio Martinelli, Enzo Olivieri, and Elisabetta Scoppola
- Exact Results for a Meniscus in a Three-Phase System Within an SOS-Type Approximation 1121
Joël De Coninck, François Dunlop, and Frédéric Menu
- Exact Results for the Two-Dimensional, Two-Component Plasma at $\Gamma = 2$ in Doubly Periodic Boundary Conditions 1141
P. J. Forrester
- Many-Body Function of Nonprimitive Electrolytes in One Dimension 1161
Fernando Vericat and Lesser Blum
- Moments of the Percus-Yevick Hard-Sphere Correlation Function 1187
N. E. Berger and V. Twersky
- Hamilton's Equations for Constrained Dynamical Systems 1203
Simon W. de Leeuw, John W. Perram, and Henrik G. Petersen
- Exact Integral Operator Form of the Wigner Distribution-Function Equation in Many-Body Quantum Transport Theory 1223
F. A. Buot
- Fluctuation-Induced Couplings between Defect Lines or Particle Chains 1257
Thomas C. Halsey and Will Toor
- Monte Carlo Study of the Generalized Reaction-Diffusion Lattice-Gas Model System 1283
J. M. Gonz  les-Miranda and J. Marro

SHORT COMMUNICATION

- Hard-Hexagon Model: Calculation of Anisotropic Interfacial Tension from Asymptotic Degeneracy of Largest Eigenvalues of Row-Row Transfer Matrix 1295
Masafumi Fujimoto

DEPARTMENTS

- Program of the Third Liblice Conference on the Statistical Mechanics of Liquids 1305
- Author Index for *Journal of Statistical Physics* (1990) 1309
- Future Contributions to *Journal of Statistical Physics* 1325

